

## Connector Waves Forest

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# "BOB" AND THE OXYGEN WARS

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The SubGenius boasts about Time Control always sound like a bunch of tall tales, until you get a firsthand taste of the High Volt Age. One of "Bob's" Friends from the Future just clued me in, partway at least, and my scrambled synapses still haven't settled. How do I apply some of these crazy new ideas in time to help prevent or at least personally survive you-know-what?

Sometimes it seems like your luck has to balance out somehow, where you have to undergo a total bummer to set you up for something great you'd never have run into otherwise.

I was hoping this would be one of those times. A blown head gasket on an empty desert highway should be worth some sort of break to even things out, preferably before the sun melted me into the asphalt.

But so far all I was getting was a new and deeper appreciation of the word barren. Even the occasional scragglebush looked like it really resented being here, and wasn't about to put any more than the bare minimum of survival effort into it.

So much for shortcuts. I'd been walking for three hours and had seen only one car. The expressions glimpsed on the flyby were of dull surprise that anyone would even try to hitch a ride in this time and place—a feeling I could appreciate.

It was getting rather obvious that years of city life had left me in pitiful shape. Only a few hours out in a hot but otherwise ordinary American desert and I was nearly wiped out already.

This was no longer just a matter of missing a long-shot job interview that might have helped me postpone lifting anything heavier than a paintbrush a little while longer. It was starting to look like all my stubborn resistance to changing times had caught up with me. When their basic survival necessities get threatened, most folks' interest in "art" evaporates quicker than piss on a desert bush, which got the unpleasant surprise of discovering that it could get even more resentful than it already was.

Shortly after that so did I. My crude pack of stuff salvaged from the car got its fill of bouncing and bellyaching, split open and scattered feeble expressions of American "culture" across the gravel. How appropriate. The phrase "World Without Slack" kept taking on new and more exasperating significance.

While I was crouching there, telling various inanimate objects how stupid they were and patching the pack by tying my shirt around it, all my arm and neck hairs suddenly stood up.

I turned around, and there was the smoothest-looking sports car I've ever seen, standing with the passenger door open. Instant floods of relief struggled with major danger signals for control of my legs. There was no way I could have missed seeing that car miles ahead of its arrival. I'd been looking back a lot oftener than any logical expectations could justify. And even with all the smog that's crept into the desert basins, visibility was still at least twenty miles, on a road going straight over the horizon.

The desperate craving for shade won out. Dehydration makes me capable of superhuman rationalizations.

The car was actually the same shimmery color as the road, and might have been mistaken for part of the constant mirage. The motor was too quiet to be heard over the mild desert wind-which, rather than cooling me off, tended to produce a slight blowtorch effect.

And anyway, how could something so beautiful be dangerous? Its curve was completely different yet thoroughly appropriate. The interior was a deep moss green, and a cool ocean breeze seemed to be flowing from inside it. This car was definitely not made in Detroit.

As I stepped up to the open door I could see that the kid at the wheel looked harmless enough-scrawny, and unarmed unless his swimming trunks had a secret compartment, or the car itself was one big weapon. I collapsed into the strange green upholstery and pulled the door shut. The sound reminded me slightly of a submarine hatch closing.

"Thanks," I rasped. "That was getting embarrassing."

The kid just smiled and floored it. We went from zero to about one-ten in seven seconds, with no gear changes that I could detect. The bucket seat yielded in all the right places, but I immediately discovered there were no seat belts. And all I could figure was that he must have some really ultimate soundproofing, because I could hardly hear any engine noise. There was just sort of a deep muffled pounding whoosh, like a distant waterfall.

"What kind of car is this?"

"You sound awful. Here, soak those vocal cords before you break something. Unless you're trying for a New Sound, maybe."

I seized the water jug, closed my eyes and swallowed until I had to stop for air. Then I sat there gasping and trying to identify some of the extra stuff in the car's instrument cluster. What little I thought I could recognize made no sense at all, so I looked at the driver instead.

He didn't seem to make sense either. For one thing, he was soaked, not from sweat but as if he'd just been swimming five minutes ago. He looked quite cool and comfortable, and smelled like seawater-of which the nearest had to be a couple hundred miles away.

Also, he didn't entirely look like a kid, up close. The face was maybe nineteen, but the eyes seemed much too confident and experienced. Though he looked thin, the muscle definition was unusually sharp. And his hands and feet looked like they'd seen at least thirty years of heavy work, and were up for plenty more whenever.

I acted mildly unastounded by our speed and silence and took another shot at conversation. "You're probably wondering how I came to be stuck out here."

"Not really."

Normally I'd expect to be annoyed at such indifference to human suffering, especially mine, but he was so matter-of-fact about it.

He added, "One dead car, three hours cold, and one overheated hitchhiker two hours' walk past it. Nothing else around for miles. Fairly short list of possible explanations, eh?"

In these imitating times that sort of statement might be considered as a mild put-down, especially from a strange and evidently well-financed teenager. But here it came across perfectly straightforward. I credited

my extra tolerance to the relief of getting out from under the sun, and to the water's invigorating aftertaste.

"What's in this stuff?"

"A few trace minerals, some North Pole magnetism and extra oxygen."

My stomach started feeling rather odd. "How do you get magnetism into water?"

"Put the north face of a large, flat magnet against it for a while. Makes it more able to hold things in solution. Don't use the south face unless the water's for plants."

"Uh, just how much stuff is in solution here?"

"Very little. It's mostly to help it dissolve and carry out unnecessary stuff from whoever's drinking it."

I had to admit that sounded like a good idea. Depending of course on who was defining "unnecessary," and for what.

He took a giant swallow off the jug so I let it slide, then remembered something else. "How could you tell my car was three hours cold?" "Infrared. Comes in handy when you drive at night a lot."

I was trying hard not to goggle at the instrument panel, but it was rather spooky. There were pressure and temperature gauges: internal, external and somewhere else. There were high-voltage dials, gas-mixture indicators, gauges for magnetic and gravitational field intensities, a ship's floating compass, little radar and sonar screens, dials I couldn't identify at all, and some sort of range finder.

But there was no fuel gauge anywhere. Also, the speedometer had no numbers on it, just colors, and the needle was shockingly low on the dial. Unless it read backwards, it was meant to be able to register speeds many times higher than what we were doing. If that wasn't weird enough, there was an altimeter, next to a depth gauge.

Looking at all this stuff, I didn't know whether to laugh or try to escape. A lot of it appeared to have been salvaged from other vehicles. Most of the controls were touch-sensitive patches behind the same clear shield that covered all the gauges. What should have been a gearshift obviously wasn't, since he hadn't touched it yet. There were extra knobs branching off it, and what looked like backhoe levers beside it. There were also several small video screens, all empty.

Seen against all this, the faded "Bob" sticker on the glove compartment was rather reassuring. I'd met lots of SubGeniuses and while most were pretty peculiar, none seemed to be actually dangerous to me so far.

Just over the windscreen was a full-length detailed chart of the electromagnetic spectrum, with tiny indicator lights along the whole thing, including an extra upper section I'd never seen. Strangest of all, sprouting from among the gauges were nine different clock faces with little dagger-shaped joysticks poking out of them.

My stomach suddenly felt very peculiar, and I involuntarily shook like a wet dog for an instant, then let out a tremendous belch. Just as suddenly I felt all right, better than I had all day.

"What the heck was that?"

"You just clobbered the anaerobic germs in your stomach, and also boosted your oxygen saturation a bit."

"Huh?"

"You have a severe oxygen deficiency, like most people in this time period. Due to pollution and deforestation, right now your atmospheric oxygen levels are at an all-time low, so the oxygen pressure in your blood is insufficient to guard you against oxygen-hating microbes. You become slightly stagnant, and serve as a growth medium for anaerobic parasites. But all pathogens are inherently much weaker than your own cells, which are a lot more highly evolved than viruses, bacteria, fungus and such. So you can always get rid of them by just raising your internal oxygen concentration above what they can stand."

I was still working on the first part. "I've heard of all kinds of nutrient deficiencies, but oxygen?"

"Your body's supposed to be at least eighty percent water, which is eight ninths oxygen."

"Wait a minute, water is two hydrogens for each oxygen, right?" I was not exactly a chemistry whiz.

"Yeah, but the oxygen atom is sixteen times bigger, remember?" I hadn't. "You're supposed to be composed of over two thirds oxygen, twice as much as everything else in you combined. The bigger a proportion of something in a formula, the more margin there is in the high to low range of how much you can put in and still make that formula work. That also applies to the formula for an organism."

"So you can see how a person could exist anywhere along a wide range of oxygen saturation that can support his cells, though the lower levels are not much fun. But people can still function, more or less, even at oxygen percentages so low that anaerobic microbes can inhabit them quite comfortably."

"Well, how can you tell if your oxygen level is high enough?"

"If you get sick, it isn't."

"But everyone gets sick sometimes."

"Everyone you know about. You're all oxygen-starved, that's all."

I considered this while watching the desert race by. I was strangely reluctant to ask how we managed to hurtle over this beat-up old highway without feeling any real bumps or vibrations. Instead I asked, "Well, doesn't the encyclopedia still say oxygen makes up twenty-one percent of our atmosphere?"

"Have you measured it yourself lately? They haven't. They just keep printing the same figures from earlier editions."

"So what level is it at?"

"Depends where you measure it. In a healthy rain forest it can still get up over twenty percent. But most large cities have very few trees and lots of carbon monoxide, which, being electrically unstable, gobbles up free oxygen like crazy, to become carbon dioxide, which is more stable. In those cities it gets down to twelve percent or less at times. In Eastern Europe, with the whole Western world's pollution blowing at them, even wooded areas can drop below fifteen percent. Entire forests are dying there. For humans, suffocation occurs at around seven percent."

"You mean the cities are already more than halfway to suffocating?" "Right. What do you think causes early heart attacks, crib deaths and crashed immune systems? Very little of that happening in mountain villages. A mammal's immune system uses lots of single-atom oxygen in knocking off germs, and carries it around in  $\text{H}_2\text{O}_2$ . That's because singlet oxygen itself is so reactive it only stays loose for maybe a

millionth of a second before oxidizing the nearest appropriate molecule. You should be intemally producing and using several quarts of  $\text{H}_2\text{O}_2$  every day, but you can't if there's not enough oxygen available from your air."

A little of this was coming back now. " $\text{H}_2\text{O}_2$ ? You mean hydrogen peroxide?"

"Yeah, oxygen water. The tiny amount in what you drank oxidized the pathogens in your stomach."

"That stuff they sell in brown bottles?" Yucko.

"No, the pure food-grade kind, thirty-five percent, which can hurt you if you don't dilute it enough. Lots of health-food stores carry it now. -The drugstore variety has chemical stabilizers in it. Okay to put a little on a wound, but not much else."

"Stabilizers?"

"Supposedly to keep the oxygen from escaping, but it's really more stable than they let on. Mainly it's so no one will use enough of it all at once to get rid of a major disease that should've netted some hospital at least twenty grand."

"What? Which diseases can you get rid of with it?"

"All of them. But oxygen water is too simple and cheap to draw any commercial interest. Unpatentable."

"What do you mean, all of them?"

"Like I said, all disease organisms prefer much lower oxygen saturations than what your cells function best at. Their primitive, fragile membranes break down at concentrations a healthy human cell merely finds invigorating. You need it constantly; oxygen's the only thing you can die in minutes without. Get enough and it protects you from disease."

"What about cancer?"

"Especially cancer. It's anaerobic; high oxygen levels kill it pretty fast. Otto Warburg won a Nobel Prize back in the 1930s for pointing that out, but your medical establishment has ignored the principle since then. Too unprofitable. Cancer cells get energy from glucose by fermentation instead of by oxidizing it like normal cells. This wastes so much energy that the healthy cells can't get enough to function and the cancer squeezes them out, unless you intervene by raising the oxygen level one way or another."

I thought of a couple of friends who should be hearing this. My growing exhilaration wasn't just from watching the now-painless desert zooming past. "Why isn't this all written up somewhere?"

"It is, it's just unpublicized. Hundreds of physicians have independently reported curing all kinds of supposedly incurable diseases by raising the patient's oxygen saturation, whether with intravenous  $\text{H}_2\text{O}_2$ , ozone blood infusions, taheebo or hyperbaric oxygen tanks, all of which simply raise the level of  $\text{H}_2\text{O}_2$  in the blood. But the way of modern science is to disregard any facts that don't fit the accepted lucrative theory. And disease is a multibillion-dollar industry, in case you hadn't noticed."

"For someone so young, you are well informed but awfully cynical."

He chuckled lightly. "Just how old do you think I am?"

I was spared the embarrassment of guessing completely wrong by a small interruption. A kamikaze jackrabbit apparently decided we were its ticket out of this desert and maybe out of rabbithood, and scooted right in front of us. The kid's hand twisted part of the steering wheel like a motorcycle throttle, and the whole car smoothly lifted a couple of feet then dropped back to the road. I turned and glimpsed a surprisingly complicated expression on the receding rabbit.

"Would you mind telling me where this car was made?"

"Detroit, mostly."

"Uh, Detroit in Michigan?"

"Where else?"

I really wasn't holding up my end of the discussion very well. But I was still determined to at least be too cool to ask why he was dripping wet in an air-conditioned car ninety miles from any water.

That was another thing I realized just then: The air conditioning was supreme. Instead of the usual dry, synthetic-tasting car air, this air was cool, moist, and invigorating, like the air near a waterfall. The roasted landscape whizzing by, and the relentless sun beating down all around, might as well have been on a movie screen for all the elect they had on us.

I tried a different approach. "Is your air conditioner a custom job as well?"

"Actually it's fairly standard at this car's point of origin. Nice, eh? The extra moisture, oxygen and negative ions make it pretty close to the optimum breathing mix for humans."

I spotted the inside air-mix gauge. "Thirty percent oxygen? Isn't that supposed to be twenty-one?"

"Just because it was twenty-one when the encyclopedias first came out doesn't mean that's optimum. Desertification of Earth has been going on a long time, though the current rate is unprecedented. Remember hearing about those scientists who measured the air mix in bubbles trapped in fossilized amber? It tested out around this high. Those samples were trapped about the time the mammals took over. Not much tree-cutting or gas-burning going on back then, and the plant-animal ratio was ideal. Under those conditions eventually humans appeared, designed to operate at that oxygen percentage."

"So it's dropped by a third since then?"

"It's had lots of help. Currently the manufacture and operation of your machinery consumes eighteen times the oxygen you use up through breathing. That's the equivalent of another ninety billion people standing around sharing your air, all so someone can keep selling oil and cars and such. Talk about wasteful, it works out that driving twenty thousand miles uses up as much oxygen as breathing for two years."

"Folks do have a right to travel, though."

"Absolutely, but there are much cleaner, cheaper and safer methods, ready and waiting, still as effective as back when they were invented and neglected. Same with oxygen as a healing principle. It's an ancient concept, appearing in various forms throughout history, but you all need it now more than ever. It stands to reason that if your body contains over three times the percentage of oxygen that's in the air, it has to work a lot harder at concentrating whatever it extracts through breathing when the atmospheric oxygen level drops. So supplementing it with oxywater or other high-oxygen substances becomes the most

logical short-term solution."

"How about long-term?"

"Re-establish a healthy global oxygen production-consumption ballance, if you're up to the task. It can be done, though the situation may need to get even worse before enough folks get their priorities straight. Like a lot of things, oxygen is taken for panted, but since it is so reactive, I+ee oxygen has to constantly be replenished or it all gets bound up in other compounds. Keep trashing your forests and your oceans' phytoplankton, and you'll all be gasping long before X-Day." "Oh yeah, when's that again?"

"Soon enough that you'd better get cracking. It'll be hard enough as it is, trying to mobilize a bunch of oxygen-starved Normals, and the longer you wait the more sick and tired and useless they"" become." I had a sudden flash. "Is this why people were supposedly stronger and lived longer in early Biblical times?"

"Precisely. Though by then there was already some atmospheric damage from earlier civilizations."

"What, like Atlantis?"

"Among others. Many civilizations go through a brief deforestation and fossil-fuel-burning stage, but this one has been artificially retarded and kept there for over a century."

"By whom?"

"When you find the answer to that question, you will then know what to do about it."

"Some reason you can't just tell me?"

"At this point you'd never believe it, and that would interfere with your grasping certain other necessary facts first."

I made a disrespectful noise. "You sound just like my old college professor, Mr. McSploont."

"How clever of him. What'd he teach?"

"Disregard for college professors, mostly. I expect he eventually melted down in the white heat of his own brilliance."

He smiled a knowing smile that wasn't smug or imitating, but rather a bit frightening, hinting at vast hard-won experience.

"So besides being physically less healthy overall, noticed anything else wrong with city folks?" he asked quietly.

"You name it, they've screwed it up. Basically most of them just act unbelievably lame, and tolerate the most absurd stuff you can imagine. There's some exceptions, but I mean, like, have you switched on a TV set lately?"

He casually touched part of the spectmm chart overhead. One screen lit up with a retina-wrenching ten-second montage of about ninety different TV channels, then he switched it off. "Yup, pretty pitiful."

I was staring at the blank screen. "Uh, well, yeah, there you are."

"So what do you reckon makes them act like that?"

"Beats me." It was reassuring to refer to "them" as if I had rarely lived in a city. "It's like they're all brain-damaged. Which is a real drag, considering that's where all the governments are located . . . hey, wait a minute."

He grinned. "Exactly. What happens to a brain that gets oxygen-starved?" Mine seemed to be slipping gears a bit. "It goes to that big scrap bucket in the sky, eventually. But continuous gradual oxygen starvation, over a period of years..." I had to admit this could explain an awful lot of modern human behavior. "Earlier you implied all this was somehow deliberate. Does someone actually want people brain-damaged and stupid?"

"Did you attend a public school? Do you follow the so-called news? Have you browsed through a pharmacy recently?"

"Well, okay, but aren't most of the guys behind all that living right there in the cities too?"

"The most powerful ones all have their own remote strongholds, and can afford to have many others fronting for them. A good rule of thumb is, if someone's in the news, that person's not actually running things. And hired help are seldom in on the big picture, or the true purpose of their assigned tasks."

We reached the crest of a long, low rise and started down the other side. There was a slight bend ahead, with another road feeding in from the south, all of which seemed a lot more interesting than it really was, due to following so many miles of straightness. At the very edge of visibility it looked like there was a little town. It struck me that I had one hell of a lot of unasked questions still, and for all I knew this could be his destination coming up.

I took a wild guess. "Since you're not a big fan of air pollution, I assume this car is electrical, somehow."

"You could say that. It has more than one system, but the motor we're using at the moment is a variation on the Noble Gas Plasma Engine invented by Joseph Papp in the early seventies. Of course, since it's cheap and fuelless it was never allowed to be commercially developed." "Of course. How does it manage to be fuelless with gas plasma?"

"Noble gases. They're inert; with their outer electron shells already full, they've got no incentive to hook up with other atoms. So they aren't being burned or broken down, just induced to expand repeatedly. Put a certain Inix of noble gases in a sealed cylinder with a piston, spark it and pulse a Inagnetic field around it, and the gases repel each other quite fiercely for an instant, then collapse back to their previous state, to be sparked again. The energy delivered by the piston's displacInent greatly exceeds that required to spark the gases, providing a net excess from a self-powering system."

"Are you saying this thing is a perpetual Inotion machine?"

"We're living on the surface of a great big perpetual motion machine and composed of godzillions of little tiny ones, so shouldn't they be able to exist on our scale as well?"

"Well, those things'll all wind down eventually, right?"

"They'll run long enough for whatever you plan on doing with them. Anyhow, this design is somewhat less than perpetual; every hundred thousand miles or so the gases lose their elasticity and need to be replaced."



"Sounds pretty tough."

"Sure beats making your whole lower atmosphere taste like a monoxide suicide's garage."

"Couldn't we retrofit existing car engines to run off this?"

"Simpler to start from scratch, but maybe. Seal off the valves, throw away the carburetor, fuel lines, exhaust manifold and so forth, evacuate the cylinders and let in the inert gas mix. It'd become two-stroke, since there's nothing for it to suck in or exhaust."

"So this gas is some combination of helium, neon, argon, krypton and xenon?" I was amazed I could still remember their names. "I suppose the exact mixture is privileged information."

"Technically, but it's locatable. The inventor's still alive, last we heard, but understandably rather frustrated. It's always disillusioning to work out a practical solution for some major problem, only to find out there's someone profiting hugely by keeping the problem just the way it is."

For some reason I didn't resist this notion as much as I usually would, even though it implied my having to eventually help do something about it. But at the moment what I really wanted was details. "Where could I find diagrams and such? I'm no engineer but I know a couple. While we're at it, how's that gearless transmission work? And what was that hopping trick? I'm assuming you'd like others to pick up on these inventions."

"Naturally. The drive gear consists of long cones pointing in opposite directions, with a heavy triangular belt that slides along them, giving a smoothly variable ratio between their cross sections. Again, it's not a new idea, but it had anti-commercial potential, being much too efficient and durable, so no way was any major automaker going to retool for that."

"I'd think the first to do it would make a fortune. Who wouldn't want one?"

"You're kidding, right? At first, sure they would, but then that'd be the end of selling replacement transmissions, and cost billions in lost engine sales and repairs, from the greatly reduced wear. Plus billions more in lowered gasoline consumption, due to improved efficiency. As for the rest of it, remind me to give you a few patent numbers and such before you get off."

It occurred to me that during all this I still hadn't asked how far he was going. Wherever it was, we'd be arriving a lot sooner than expected.

There was a billboard, of all things, about four miles ahead of us. Mr. Science touched something under one of the video screens and it gave us a zoom picture of the road ahead. He reached up and pushed a spot just below the visible-light band on the spectrum chart, and a little car-shaped pink spot with a bright center appeared on the screen at the bottom of the billboard.

"Nice of 'em to build that feller some shade. Though I doubt he's been there long."

"Well, don't you think you should slow down a bit?"

He shook his head. "My, aren't you well-conditioned. Don't sweat it; this car's not under any local jurisdictions."

While I considered my response, trying to choose between sounding real law-abiding and getting some clarification, we zipped past the billboard. He touched a spot on the radio portion of the spectrum, just as

a very dusty police car lurched out after us in a cloud of gravel.

"Got a live one, Charlie," buzzed a small speaker in the dash. "No plates, too fast to get the make. At least one-twenty."

"Want me to come on out?" A fainter voice, younger.

"May need you for a roadblock, so stand by. Let's see if this new engine is as good as Clyde says."

We were already nearly a mile past him but now we could hear a faint siren, slowly getting louder. We slowed down slightly, a move which sort of seemed at cross-purposes with rocketing past a sheriff in the first place. My ever-unpredictable benefactor hit a button under the speaker and said, "Are you attempting to get my attention, officer?"

There was a brief spluttering noise, then a few clenched words. "Smart boy, huh? Pull your fancy self over, before I get irritated."

"That shouldn't be necessary. I can easily answer your questions in this manner, without being late for my destination."

"You think this is open for discussion? Identify yourself."

"Changesmith. Or CS, whichever. Who's this?"

"Officer Harry Scrotum. You have about five seconds to pull off of my highway."

"I see," said CS sympathetically. "What seems to be the trouble?"

"Are you nuts? Reckless endangerment, doing twice the limit, unauthorized use of police bands, no plates; hell, I expect your fine'll buy us a whole new station. You're even hauling drugs for all I know."

CS smiled questioningly at me and I shook my head. "Nope," he said. "And no one uses them where I'm from."

"Drugs?"

"License plates."

There was a strained silence. He evidently was not up for pursuing the implications of that. We were now less than a quarter mile ahead of the sheriff's car, which was still creeping closer, apparently at its top speed.

Changesmith added helpfully, "If our velocity is causing concern, be reassured that this vehicle is crash-proof and does not threaten the safety of local traffic, should there happen to be any."

There was a heavy sigh. "Charlie, get that block up, now. Don't use any working vehicles; drag over some dunkers from Philo's lot.

"And as for you, snakebrain, consider yourself warned. This is your last chance to pull over in one piece."

"Sorry to disturb your programming, but it's a mistake to assume that everything that moves through your area is subject to your rules and limitations."

"That's it, pal, your death wish is granted."

A sudden shimmy from the left hind wheel was followed by the faint sound of two gunshots. Changesmith touched a panel on the dash and a small sign lit up that said GUNJAMUER, then he accelerated us a bit. The shimmy grew more pronounced, then there was a loud clank and it stopped entirely.

No flat tire, and no more gunfire that I could hear. I looked back to see a pistol being violently shaken out the cop's window, accompanied by some general-purpose curses coming over the speaker.

CS said, "Sorry, but we couldn't chance a ricochet hitting someone in your town up ahead," and switched off the speaker.

"What'd you do?" I asked.

"Ever hear of a subject. known as sonochemistry? Production of chemical changes with sound waves? This is related; we're broadcasting a simulation of the wave pattern that occurs when water blocks the oxidizing spaces in gunpowder. Since matter is junior to energy, many effects can be induced on the physical level simply by emitting the kinds of vibrations which accompany and direct them."

"Now that I like. How wide an area is affected?"

"The range varies with the power and circuit design. At the moment, no one can shoot anybody within about twelve miles of us."

"Well, all right! Does it interfere at all with organic oxidation?"

"Good question, but no; cellular processes are all much less explosive. Dilserent frequencies altogether."

"Couldn't someone just mass-produce these things, hide them all over the world, and stop wars and murders once and for all?"

"With enough time and materials, yes. Appealing idea, isn't it? Like taking matches away from children."

I thought about it. "On the other hand, I suppose the more extreme gun lovers would all come after you with crossbows, until it sunk in that now thefd be protected as well. You'd have to be pretty discreet."

He zoomed the picture on the screen a bit more, and the rusty town became quite visible, complete with roadblock. The crew that was pushing it together seemed to be engaged in a lively argument with some old desert rat over one of the cars they'd included.

CS chuckled and switched the speaker back on. "How's your engine holding up?"

"Oh, so you're back, eh? I see we can add Giving False Names to the list of charges."

"Not at all. That is indeed my usual designation."

"You mean you don't even have a license, on top of everything else?"

Apparently neither of them considered it tasteful to mention the brief shooting incident. "Did you punch it in under Change or Smith?"

The speaker was silent for a moment, then Harry came on again, his voice containing a curious blend of

triumph, respect, bravado and near-panic. "Let me guess. That thing you're driving is some sort of a stolen Pentagon experiment, right?"

"If so it'd be the most intelligent expenditure they ever made. But no, it was assembled entirely by unarmed forces."

"Well, either way, it might interest you to know that this here computer advises capturing and/or killing you with extremely hasty prejudice, in the urgent interests of national security."

"How thoughtful of it. You'd be awfully disappointed to learn exactly whose interests are now considered to be a matter of national security."

"Do I sound like the kind of character who goes around second-guessing the government? Look, it doesn't matter to me if you crash and burn at the roadblock, or among the boulders and ravines around the town, in case you were figuring on leaving the road. But since we'll miss out on your nice big fine, tell me something first: I know I saw the second shot hit your tire, so what's the deal? Tire armor or something?"

"Actually, why aren't we leaving the road?" I asked softly. "Is that trick only good for little hops?"

"He'd have to try and follow us, and I don't want to be responsible for him racking up his car and possibly himself." He added in a louder voice, "The tire's full of a type of semisolid high-pressure sorbothane foam, which hardens to a tough elastic crust on contact with air. Anything causing a puncture gets forced out through the surface by the internal pressure and centrifugal force, then the opening seals itself. Makes a flat tire impossible." He sounded awfully calm, for someone who was closing in at high speed on a barrier of old cars, and wanted by federal agents besides.

There was another brief silence. The screen was reducing its zoom as we neared the town, holding the image at a constant size. It showed the roadblock crew and a few dozen spectators scrambling back from the impending impact zone, everyone but the old-timer who appeared to be trying to start one of the cars.

Harry spoke up again. "If that's true, how come I never heard of that stuff before?"

"Ask the chief executives of your tire companies. It's in their files."

Right when I was sure this couldn't get any more complicated, another small speaker spoke up, with a completely different voice. "CS, there's some action about sixty leagues north of you."

"How bad?"

"Just heating up, max it but stay low."

"No kidding."

"And watch for monitors."

"Whose?"

"Anyone's."

"Okay, Xandy."

By now I was just about ready for what happened next. He pulled back hard on the wheel and the steering column stretched toward him. The road, roadblock, desert and town suddenly dropped away under us and shrank with its collective jaw hanging open. I looked down and back at all the little uptumed astounded faces and laughed like an idiot, despite the fact that my gonads were trying to crawl behind each other.

The engine's faint whooshing sound didn't get much louder, but now it had a kind of underwater ringing quality.

"Real professional," remarked the speaker. "Maybe you could hold a seminar on how to keep a low profile, when you get back."

"Oh, hush. They'll probably be too embarrassed to even report it."

"You think anyone can run a check on your name without triggering a follow-up inquiry as to why?"

"Fret not; he can't tell them anything they don't already know, and by the time they respond we'll be extremely elsewhere."

As we tilted north and leveled out at less than a thousand feet, I wondered why I wasn't more disturbed at being, for all practical purposes, kidnapped by a UFO. Getting nowhere with that, I started wondering why I wasn't being flattened into the seat by our steep ascent, unable to turn my head like this without extreme and possibly terminal discomfort. Some sort of high-tech shenanigans were keeping my weight from being affected by these abrupt speed and direction changes. "So, you can even get away with breaking the laws of inertia?"

"Not exactly, but there are conditions under which they don't apply.

Those equations only described mechanical interactions at the low electrical intensities familiar at that time. At high enough voltages a local electrogravitational field can override the surrounding gravity well, and suspend inertia within the field."

I recalled my arm-hair reaction when the car first got near me. "How high a voltage?"

"Millions, but the current is so low it's practically a static charge. You also need to know what frequency to pulsate it, among other things."

The speaker switched itself on again, a different voice with more background hiss. "Try and stick to the information already available there and then."

CS ignored my startled look. "All this can easily be dug up through the scientific underground here. Like, the Biefeld-Brown effect is already sixty years old, and it's been written up all over the place."

"I've never heard of it," I said, in a tone intended to encourage generosity with details.

He looked straight into my right eye. "Do you ever seek out information through any sources which are not approved and controlled by some tentacle of the Conspiracy?"

I squirmed a little. "Probably not. It's all just so . . . available."

"So even though you know they're a pack of liars, you still get all your news from their broadcasts and publications?"

"All right, so where do I find out who's got the real scoop?"

"Depends on what you want to know and if you really want to know it. But one way is, the most honest sources seldom seem to have much money, or charge much for their reports. Nor do they tend to get much coverage in any media owned by anyone with economic interests that could be harmed by such information getting out."

"Could you please just tell me how we manage to fly with no wings, propellers or jets?"

"Have you ever noticed what happens when you hang a charged condenser on a thread or a balance beam?"

"Can't say as I have. You mean a capacitor, right? An insulator between two conductive surfaces for storing charge?"

"Same difference. It can be any shape as long as its poles are at opposite ends, and it holds a substantial charge. Try it and you'll see it try to move in the direction of its positive pole. Hang it on a scale with the positive pole up and it'll get lighter. Shape the charged surfaces properly, put a huge positive charge on the leading edge, pulsed at a high enough frequency, and you can make that sucker fly."

"Let me get this straight. Right now the hull of this thing is carrying umpteen million volts, and we are sitting inside of a humongous capacitor? Why aren't we electrocuted, or did I just miss it in all the excitement?"

"The frequency's too high to bother our cells, and we're insulated from it anyhow. See, the condenser is the linking device between electricity and gravity, like the coil is between electricity and magnetism."

"We're riding on a temporary artificial gravity hump, sliding down it continuously like a surfboard on a wave, and carrying it along with us. In different terms, we're putting electrical stress on the local fabric of space, which tries to correct or balance it out by drawing us forward into the slight relative vacuum we're creating in the space-juice ahead of us. This here's the simplest version of the most widely used transportation method in this arm of the galaxy."

"Watch it," from the speaker again.

"What is this?" I yelled. "You got someone monitoring us?"

"Yeah, we always leave the line open. If anything happens they can learn a lot from the final transmission."

"WHAT??"

"Oh, relax, would you? Here, put some of this on your arms and legs, while you're sitting there gawking." He offered me a clear plastic squeeze bottle of what looked like water.

"What is it?" I had a lot to gawk at, with the desert tearing by right under us. This guy was crossing jet speeds with hang-glider altitudes, and it tended to keep the adrenaline pumping quite briskly. "And what's the anything that might happen?"

"A lot less than you were subject to back where I found you, so settle down and enjoy the heightened sensory input. This is three percent oxywater; you can absorb it through your skin." He splashed some on his chest and rubbed it in, then handed me the bottle.

"What will it do?"

"Weren't you listening earlier? Try it and see."

I smeared a bit on my arm and it felt just like water, so I went ahead and did both my arms, my legs and my chest. It was actually rather soothing somehow.

While I was rubbing it in I suddenly remembered why we were up here. "What'd that mean earlier, some action up north?"

"We have to go put out a forest fire."

Now I was really amazed. "When did the forest service get this sort of funding?"

"Dream on. This is an independent action; all the regular fire fighters are already tied up at other zones closer to populated areas."

That much I could believe; I'd recently heard the fire season was in full swing out here. I started to hand back the bottle.

"Put a little on your neck and behind your ears; it'll get into your cranial blood more quickly."

I did so and smelled something rather pungent, then realized it was my own arm. I smelled the bottle and it was completely odorless, so I put my forearm up to my nose and sniffed, and it smelled like a locker room with smoke damage. "What gives?"

"H<sub>2</sub>O<sub>2</sub> enhances membrane transport, among other things. Your pores just expelled most of their accumulated toxins to the surface of your skin. They were there in you all along, but now you can smell them. The oxygen goes in and the garbage comes out. Here, use this." He pulled a wet towel out from under his seat and gave it to me.

Parts of my skin were starting to itch slightly, so I vigorously rubbed everything off with the towel, while noticing that I felt more alert and clearheaded than a minute ago. It was-subtle and totally undruglike, as if it were a notch closer to the way I was actually supposed to feel normally.

"Does that improve things?" he asked.

"Yes, actually, though I can't explain just how." I figured I'd better try to get a clearer picture of my exact situation here, without seeming too obvious. "So now I'm germ-free, simple as that?"

"Hardly. You are absolutely riddled with anaerobic opportunists. But they've gotten the message, the party's over."

Apparently even fewer things were under my control than I thought. "Are they likely to be upset?"

"You better believe it. And their death struggles can be most uncomfortable to be around. You just don't back down once the battle's joined, that's all."

"I suppose it's too late to re-establish a truce?"

He looked at me and was no longer smiling. "It's way past too late. Any truce with them is on their terms, and they know a lot more about you than you do about them. For them you are a walking food supply,

among other things, but you have no idea what they really represent."

My spine literally tingled at that, but I said, "How can you attribute intelligent behavior to a bunch of bacteria and viruses?"

"Individually they aren't very bright, but neither are your cells. When vast numbers of them get together, that's another story. You've heard of colonial organisms like beehives and army ants?"

"But germs are so tiny."

"Lots of your cells aren't much bigger. But enough microorganisms all working together can collectively act as a much larger intelligent life-form, such as you presumably exemplify."

"Look, those disease microbes aren't even physically connected."

"Neither are army ants, but they still manage to stomp the daylights out of anything that gets in their way. Since they're genetically identical, their DNA coils all oscillate at exactly the same set of frequencies; being on the same wavelength gives them telepathic linkage."

"Well, maybe, but ants at least have some sort of rudimentary brains to be telepathic with; germs do not."

"Your individual cells have no brains as such, and they sure wouldn't last long on their own, but when enough of them team up, they're a critter to be reckoned with."

I started getting a weird flashback from something I occasionally experienced during my mushroom days. It involved becoming somehow slightly aware on the cellular level, and it contained a sense of high drama that always made me feel vaguely guilty. Here were all these fearless hordes of cells, putting everything they had into keeping this body going, working nonstop, every moment of their brief lives, all so I could ... do what? I was never able to think of an activity I could engage in that would be truly worthy of all that selfless cellular effort, so I sheepishly buried the vision under more normal memories.

Now it was back, and I remembered something else about it, some additional vague presence I had never felt like examining closely, and always forgot about as quickly as possible. There was something else in there that wasn't part of me or my cells. It felt cold, silent, disinterested, and very, very old. Now for the first time I actually tried to wrap my wits around it, and I got the distinct impression it was not pleased with me.

But there was nothing in the way of a personality to relate to. It felt like a minor part of something much bigger, patiently engaged in some vast operation that spanned millions of years. Most disturbing of all was the definite feeling that this huge project was nearing completion. "Did you find your answer?" Changesmith's quiet voice brought the "real world" back to center stage, while the microdrama faded. The landscape streaming past was a lot more jagged now, and had picked up a few Joshua trees.

"Answer?"

"Earlier you asked, in effect, who is really behind the Conspiracy. The question to consider is: Who ultimately benefits the most from the overall effects of the things the Conspiracy does, or forces others to do?" "That's what's always been so maddening. I just can't figure someone being both brilliant enough to pull off all these amazing scams, and stupid enough not to be able to foresee the disastrous consequences. It makes no sense that they'd try so hard to gain control of the whole planet, just to destroy it in the process. Especially if, as you say, they know about and choose to suppress alternative technologies that could head off eco-disasters altogether."



"What does that leave?"

I looked at the increasingly rocky scenery and thought about it. My sense of urgency was heightened considerably by the way CS seemed to just barely avoid the taller granite formations rushing past us.

"I guess whoever they are, either they're as suicidally psychotic as they are diabolically clever, or they've arranged someplace else to go after they've trashed the Earth." I let out a deep sigh. "Or they aren't even human at all and they have some totally different set of priorities."

He smiled grimly. "Or some combination of all three. So, since we're assuming the Conspiracy is smart enough to be actually accomplishing its goals, and since the overall effect of all the Conspiracy's actions is to eventually ruin this planet's oxygen cover and render it uninhabitable for humans and other higher life-forms, apparently that must be one of their actual goals. Who might possibly desire such a thing?"

"Lower life-forms, right?" Something in me felt it might be true, and something else was fiercely denying it. "Are you saying that all the activities of modern civilization are ultimately aimed at serving the interests of a bunch of germs? The heads of the Conspiracy are actually microbes? Who's going to believe that?"

"All the most successful conspiracies have been so outlandish they were impossible for anyone to believe, until it was too late. And nor none of our truly civilized activities serve them, only our ecology-wrecking ones. The germs may be merely a physical extension of something bigger and uglier that exists mostly on a different plane, feeding on death-energy- And humans themselves are actually making most of the decisions, but they are unaware of the neurological influences of the anaerobic entities hiding among their cells."

"A gang of viruses has stolen our brains? Give me a break."

"That's what all this is for. Actually, there is ample precedent for a lower life-form temporarily seizing control of a higher one's nervous system for its own purposes."

"Can you give me a for instance?"

"Certainly. Viruses routinely take over their target cells' manufacturing processes, to create more viruses. On a slightly larger scale, the ant brainworm needs to complete its life cycle in a sheep's gut, which is hardly an ant's favorite hangout. Nonetheless, when the time comes, the worm induces its host to climb up to the tip of a blade of grass and wait to be grazed. Then there's the parasitic bee worm that eventually persuades its bee to go drown itself, just so the worm can reproduce in the water."

"Gack. Okay, but what about bigger creatures?"

"Well, the problem is, if an animal's actions are not in fact serving its own needs but those of some parasite, how does it tell the difference until after it's too late, if even then?"

"Good Lord." I had several really sickening thoughts, each worse than the one before it, so I mentioned one to sort of hold off any others. "Do all those beached whales somehow tie in with this?"

"Interesting possibility. You mean like something uses whales to get up on land with a giant food supply? That'd be a tough one to verify."

"Why's that?"

"If someone hung around a decaying whale long enough to detect any monster parasites slithering away from it, would you let him stand close enough to tell you about it?"

"Heh, not without a strong crossbreeze."

"Anyhow, who knows, with whales? Some of the beachings could be their equivalent of those monks who set themselves on fire in protest."

"Of what?"

"I'm sure you can think of a few things people are doing that the whales might not be particularly enjoying."

"Wouldn't they get their point across quicker by sinking a few factory ships?"

"Perhaps that would compromise their sense of ethics. Likewise, the monks could go around blowing up this and that, but choose to make a more lasting impression."

There was another disturbing notion demanding closer examination. "What really gets to me is the idea that a bunch of germs could be influencing us all to use ineffective methods of dealing with them. What if the entire modern medical industry was really designed to prolong and spread disease rather than conquer it?"

"You would probably see a proliferation of treatments intended to mask the symptoms of disease, while the basic causes continued unchecked. Like turning your car radio up so you don't have to hear your ailing engine's warning noises. Increasing numbers of people would keep on getting sicker, from an ever-growing list of diseases, as more and more money gets poured into drugs, surgery and other accepted medical practices."

"Basically just like it is now. What a mess."

"It's not as if all the doctors have sold out the human race or anything. They're under the same subtle microbial influences as everyone else, plus their very unsubtle medical indoctrinations under others similarly afflicted. And a lot of what they've managed to develop within the limitations of their accepted theories is quite clever. Especially for patching up accident victims; some of those procedures are absolutely brilliant. Unfortunately, that doesn't quite make up for the technological stupidities that cause the accidents which make such repairs necessary in the first place."

"Oh yeah, what were you saying about this thing being crash-proof?" This was not just idle curiosity; we were into the foothills now, wiggling along canyons at the same fiendish speed that had felt excessive even over an open desert.

"When it's switched on, the cushion field that wraps around this craft repels any solid objects away from it, like the repulsion between two identical magnetic poles but much stronger. The force increases with the object's proximity and speed of approach. Ground vehicles with such fields were tested in Detroit back in the 1950s, then buried so as to postpone having to cope with all the inevitable industrial upheavals. But it's utterly foolish to build high-speed vehicles without designing in some such feature to protect the occupants and whatever might get in their way, except where the chance of getting creamed is truly meant to be part of their game."

I could only take his word for it, but we seemed to be cutting awfully close to the digger pines now whizzing by under us. As we slipped over a ridgeback and dropped into the next canyon, I recognized a

few Coulter pines with their giant cones.

"Pretty, aren't they?" CS pointed out two eagles, off to our left and downslope, leaving the area with dignity but wasting no time at it. Then they vanished behind us as we climbed again, up and over into the next valley, continuing our convoluted northern course.

"I have to admit my appreciation of the scenery is tainted somewhat with the constant feeling we are about to become part of it. I assume all this ground-hugging is to keep us from showing up on somebody's radar."

"That and for better appreciation of the land's organic detail." He lit up one screen with a transparent-looking relief map, oriented with our flight path. A tiny blue dot was creeping along one of the crinkly furrows, and I realized the map must be showing the whole southern range we were entering, a thousand square miles at least.

He reached up and poked the upper infrared part of the spectrum, and a small red patch appeared at the top of the map. "There it is."

"How will you put it out?"

"You'll see. It'll be quite picturesque." He was fiddling with parts of the radio-TV-radar section of the chart and frowning slightly at some of the indicator lights.

He tapped the mike under the smaller speaker. "Hey, is Arg back yet?"

"A few minutes ago," said a high-pitched voice. "He could use some rest, though."

"Sorry, he'll have to rest on the run. Better send him on through; it's the price of being the best. This should be a perfect chance to apply the Third Unclenched Fist."

"All fight, but don't wear the little guy out. He needs his edge."

"He'll be fine." Then he added semi-apologetically, apparently to me, "Elapsed time is practically the same at both ends."

"You must have me confused with someone who knows what you're talking about."

He blinked at me and said, "Oh yeah, reference list," then reached over and twisted the knob on the glove compartment. It opened stiffly, to the sound of gaskets separating, and he pawed through a heap of computer printouts floating around in there. He squinted at one, then handed it to me, shaking his head. "I think that's the right one for this branch," he muttered.

The print was very small. I stared at it and got as far as "Unauthorized Information Sources Available as of Late 1980s (Dobbs-Approved)" before my eyes glazed over, so I folded it up and put it somewhere for later.

We were now hurtling over mountainsides covered with orange-barked ponderosa pines, including some really big ones, with a few Jeffrey pines along the crests. An ominous smoky haze was now visible far ahead, whenever we topped a ridge-which wasn't often; he was keeping us down in the valleys and lower passes as much as possible. I was finally starting to get used to it, but my fingers must have left permanent dents in his weird upholstery.

"What is this stuff, anyway? It feels just like moss."

"That's because it is, mostly. Not all products of gene-splicing are dangerous, thank goodness."

"Uh, which ones are, in case I run into any?"

"The vast majority are still pretty nasty. Virtually all present funding of genetic engineering research is tied to biological-warfare projects. Again, the people involved think they're carrying out their own strategies, but in fact they are providing their parasitic masters with customized new vehicles, so they can more efficiently infect and take over large populations. Surely you've heard the rumors about AIDS being cooked up at Fort Detrick, Maryland?"

"Who hasn't? But why would they turn something like that loose on their own people?"

"Their own people do not include blacks, Latinos or Native Americans, the ones with the highest infection and mortality rates. Deliberate population reduction didn't stop when the Nazis fled Germany; it went international and got very covert. Here, check this out."

He activated the screen with the miniature computer keypad under it, and entered some brief request. It lit up with a map of Africa, which had a lot of small gray patches here and there. "Those are the zones where high numbers of AIDS infections have been reported."

He punched in something else, and a series of brown patches appeared, overlapping the gray ones almost exactly. "Those areas are where the World Health Organization conducted its massive smallpox vaccination program in the mid-1970s."

"They did that deliberately?"

"Not the individuals delivering the vaccinations; how could they know exactly what they'd been given to inject? But somewhere along the line, someone apparently contaminated the whole batch. It certainly wasn't the first time health personnel got duped into poisoning the people they were trying to help. Anyway, that's the bad news."

I stared at the screen, shaking my head. "What's the good news?"

He switched it off "Mainly that nobody really has to die from it, if someone gets the word to them soon enough about oxygen therapies. Ozone blood infusions, and/or slow intravenous H<sub>2</sub>O<sub>2</sub> at 0.035 percent, two hundred fifty cc's at a time, seem to work the most swiftly.

"But as far as beneficial applications of gene-splicing, Dr. Ananda Chakrabarty's work is one early example. He came up with modified bacteria that can break down dioxin and 2,4-D and other deadly long-lived poisons. Unfortunately, no one so far is producing them at anywhere near the volume the bio-warfare germ labs are up to."

Sitting and breathing heavily was about all the reply I was up for. Years of missing pieces were getting plugged in all at once, but I was undergoing extreme brain strain trying to keep up with it. At least it can't get much more intense than this, I told myself unconvincingly.

There was a loud gurgling slooshing sound right under me, so I looked down and there was an otter between my knees. I squeezed my eyes shut, then looked again and it was still there, paused in mid-crawl from under the seat, looking up with a this-better-be-worth-it expression.

"Hi, Argle."

The otter squinted at him, blinked at me, shook his head and sent an amazing quantity of cold water onto my legs. He slithered to the deep end of the footwell, yanked a short tube loose from under the dash and took a drink from it. Then he looked at me and shook his head again.

He was a fairly small specimen, some sort of northern river otter, and he was wearing a miniature backpack. "His name is Argle?" was the least stupid question I could come up with.

He sloshed over and surged right up into my lap, still carrying at least a gallon of ice water in his fur. As it sunk in, it struck me that this might just be the coldest water my lap had ever experienced, if you catch my drift. Then he stuck his face right up to mine, whiskers nearly poking my eye, and let out a revolting gargling belching noise.

CS cracked up. I sort of laughed, whimpered and gagged all at once; Argle seemed to be on an all-fish diet. Then I encouraged him to get off my lap, with what I hoped would be read by an otter as non-hostile body language, since I'd just had a close look at a very respectable set of fangs.

"Okay, I'm ready. Why an otter?"

"He's a bugging expert. Doesn't know a blessed thing about electronics but he's an ace at planting them."

Argle sloshed over to him, stood on the seat divider and yawned in his face. CS continued, "Ferrets are smaller, but otters are better at getting things open and finding hiding places. A bit undisciplined maybe, but slack is Slack."

By way of agreement, Argle chittered like a deranged raccoon and leaped into the backseat, splashing against CS along the way.

"Security at even the most top-secret complexes is still basically geared to human intrusions only. Angle is so fast, compact, nonmetallic and preposterous that he can go almost anywhere undetected. That is, when he remembers to dry off first," he added in a louder voice. A high-pitched snoring noise answered him from the backseat.

"How can he break into some high-security installation?"

"Usually he gets through the gate by running along under a car that's coming in."

"Isn't that kind of risky for him?"

"You bet. It's his career; lots of otters to avenge. And without actually hurting anyone, he can help bring an end once and for all to the murder of rivers and streams. He's a pretty brave little bugger." The snoring sound got louder, with a sarcastic edge to it.

CS grinned and studied the "experimental" portion of the spectrum chart for a moment, between radar and infrared. "Today he may get a chance to penetrate another central sourpuss sanctorum, and get us some feeds on just how organized or messed up their minds are, how many are having doubts about their agenda, or anything else that might help us salvage them or at least soften their impact." He nodded at the smoke column now taking up the middle half of the view ahead. "Then this might be less necessary."

We popped up over the final ridge between us and the fire, and raced toward it. I barely noticed the otter standing beside me again, as I stared slack-jawed at the onrushing blaze.

I'd never seen a forest fire this close. There were trees nearly two hundred feet tall, burning from the pound clear up past their crowns. The leaping flames were reflected in a river flowing through a narrow gorge off to the east. My fingers started a new set of dents in the seat moss as I realized we still hadn't changed course, and the blaze now filled the entire forward view.

I couldn't quite believe he was aiming us right into the fire. He sure didn't look suicidal, but whatever he had in mind was beyond me. At last he grabbed the mutated gearshift. I managed to keep one eye on his hands as the wildfire bore down on us. Now we'd see something. The conical hood ornament suddenly pronged forward, stretching out through a widening hole until it looked like a robot anteater snout. Then it shot out a brilliant sky-blue stream of some glowing, crackling liquid unlike anything I'd ever seen, all over the onrushing flames.

"Great Zot! What is that stuff?"

"Condensed space-juice. Supercooled fresh-squeezed electron fluid. Trees can't burn under a high negative charge."

There was a lot more of it firing out from under us through that nozzle than we could possibly have room for in any concealed tanks. "Where's it all coming from?"

"We draw it in as needed, and crush-cool it on the spot. No one misses it; there's at least ten to the ninety-fourth watt-seconds per cubic centimeter, everywhere in space, including space full of matter. The primary carrier wave of the physical universe is around sixty octaves higher than an electron's diameter." He switched hands, kept blasting away and pointed at a spot on the spectrum chart in the upper zone unknown to me. "The higher the frequency, the greater the energy density. Establish resonance with space-juice itself and you can obtain virtually unlimited power."

The sizzling, metallic turquoise liquid was spreading out incredibly fast wherever it hit, engulfing the flames in big round patches. It sounded like a cross between distant artillery and huge sails flapping in a gale as it rolled out over the blaze. The stuff went from shiny to blurry, and expanded into thick mats of blue-white fog, as if to cool and soothe whatever might survive of the forest.

We tilted around the western rim of the burned area, mopping up several hot spots missed by the main volley. The pulses of juice didn't follow exactly smooth trajectories but seemed to crackle slightly as if along lightning discharge paths.

The otter didn't appear to be even remotely scared by all this. He just stood resting a paw against my seat, watching and making chortling noises.

I found my voice again, "Is this another one of those suppressed inventions?"

"Not exactly; this one really was a bit ahead of its time. Liquid electricity doesn't have many useful applications until you make available a virtually unlimited electron supply. The basic idea was developed by a guy named Richard Diggs back in the late seventies, though he didn't foresee this embodiment at the time."

"How do you liquefy it?"

"Tell you what, since I sort of have my hands full, how about if you ask the computer instead?" He pushed something that woke up that screen again, with a blinking "info" message at the top. I stared at it for a moment and he said patiently, "Type 'liquid electricity,' then push Enter."

[Continued in Part 2](#)

